

**STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION**

| | | |
|---|---|-------------------------------|
| In the Matter of: |) | |
| |) | Docket No. 96-RDD-1890 |
| Implementation of Restructuring |) | |
| Legislation (Public Utilities |) | |
| Code § 381, [AB 1890]): RD&D |) | |
| _____ |) | |

**COMMITTEE HEARING
RE: IMPLEMENTING THE RD&D PROVISIONS
OF AB 1890**

**Wednesday
February 5, 1997
11:25 A.M.**

**1516 Ninth Street
Sacramento, California
Hearing Room A**

REPORTED BY:

S. RICE

COMMISSIONERS PRESENT

DAVID A. ROHY, Presiding Member

SALLY RAKOW, Acting Chair

STAFF PRESENT
(Alphabetically Listed)

David Abelson

Mike Batham

Mike DeAngelis

Susan Gefter

Jack Janes

Rhonda Johnson

Ronald Kukulka

Tom Tanton, Advisor

John Wilson, Advisor

ALSO PRESENT
(Alphabetically Listed)

Donald Aitken, Union of Concerned Scientists

Lee Ann Alio, Southern California Edison

Don Augenstein, IEM

David A. Berokoff, Southern California Gas Company

Carl Blumstein, UC Energy Institution

Sheryl Carter, Natural Resources Defense Council

William A. Chapman, Wind Driven

Danny Cunningham, BP Solar

ALSO PRESENT
Continued

David Duchane, Hot Dry Rock Energy

Lena Ford, MID

Loyd Forrest, TSS Consultants

Greg Gilbert, Sacramento Metro Air Quality

John Guardalabene, Pacific Gas and Electric

George A. Hay, III, Collaborative Advanced Gas Turbine, UC

Robert Judd, California Biomass Energy Alliance

Betsy L. Krieg, Pacific Gas and Electric Company

Alan Lindstrom, Pacific Gas and Electric

Katie McCormack

Thomas McGivney, California Department of Water Resources

David Modisette, Edson + Modisette

William Nadavid, Energy Inc.

Eric R. Newman, KAHL POWNALL Associates

Al Pak, Electric Power Research Institute

Robert Poitras, Generation Equipment Services Company

Keith Seegmiller

Max Sherman, Lawrence Berkeley Laboratory

Frank Spasaro, Southern California Gas Company

John Sullivan, Alzeta Corporation

Melanie Trevino, Wind Generation LLC

Jane Hughes Turnbull, Peninsula Energy Partners

ALSO PRESENT
Continued

Philip M. Vermeulen, Governmental Relations

Steven Vosen, Sandia National Laboratories

Dan Whitney, Sacramento Municipal Utility District

Mark Yancey, National Renewable Energy Laboratory

INDEX

| | <u>Page</u> |
|---|-------------|
| Opening Remarks | 1 |
| Commissioner Rohy | |
| Introduction by Staff | 3 |
| Summary of AB 1890 RD&D Advisory Group process | |
| Status of group progress, including main issues | |
| Mike DeAngelis | 3 |
| Committee questions | 14 |
| Comments by Advisory Group Members | |
| Al Pak | 18 |
| George Hay | 31 |
| Steven Vosen | 35 |
| Betsy Krieg | 39 |
| Frank Spasaro | 44 |
| Jane Turnbull | 46 |
| Max Sherman | 49 |
| Sheryl Carter | 56 |
| Mike Batham | 58 |
| Adjournment | 61 |
| Reporter Certificate | 62 |

PROCEEDINGS

PRESIDING COMMISSIONER ROHY: Good morning, ladies and gentlemen, and welcome to the Energy Commission's Hearing on RD&D.

I'm David Rohy, Presiding Member of the RD&D Committee. And with me here on the dais is, as you well know, Commissioner Sally Rakow, who I'm pleased is still Second Member on the Committee and a pleasure to work with. Also on the dais is John Wilson and Tom Tanton, advisors in the Commissioners' offices.

The purpose of this hearing is to give the Committee an opportunity to hear the progress of the RD&D Working Group. It is our understanding that the group is making progress in defining mission statement and objectives.

The Committee would also like to hear progress in the area of administrative and expenditure requirements. I understand the group agreed to some specific administrative expenditure criteria that will not be part of the collaborative process, but I would appreciate some ideas as to the types or scope that our recommendations might include.

This Commission plans to submit a proposal on the administrative and expenditure requirements to the Legislature this spring. Setting these requirements is an important milestone in the series of events that must occur to have functioning public interest RD&D programs implemented on January 1, 1998. Thus, we must move quickly to give the Legislature time to review and analyze ours and others' input.

While time is important, I do not want to give you the idea that public input in process is of lesser importance. As most of you know, this Commission has always prided itself on an open public process. There is no intent to change. Just an admonition to all of us that to ensure a timely and orderly program start all of us must work quickly to reach positions that are in the public interest and acceptable to most parties.

Strategic planning input on project selection methods, criteria; second,

how to order market connectedness and how to coordinate with the balance of RD&D that's done with regulated and private funds are important inputs.

The CPUC is scheduled to vote on the assigned Commissioners' proposed decision on public interest programs. I've not heard of whether anything has transpired there. If any of you hear on cell phones or anyone of our staff here, I'm sure that we will probably break into this hearing today to announce what we've heard with respect to that decision. So I look forward to that.

Commissioner Rakow.

ACTING CHAIR RAKOW: Thank you, Commissioner Rohy. I'm delighted to have this unexpected opportunity to participate in the second hearing of the working group and look forward to hearing about the progress.

This, as Commissioner Rohy mentioned, this collaborative process that we are reading requires really substantial thought and a great deal of time by the advisory group members. And we are very appreciative of your commitment and the time and effort you're putting in.

It was made very clear to me in a conversation with one of the key legislators that they desire and they appreciate the process that we have instituted. And I believe that although it is time consuming, it is enabling an open dialogue and the broadest treatment of the issues confronting California in developing a program to ensure the continuance of a healthy and viable RD&D. California has always been the leader, and through this process I can see that we will continue to be the leader.

And so with that, we can begin.

PRESIDING COMMISSIONER ROHY: Our Public Advisor, Susan Gefer, is collecting blue cards. If any of you have not filled one out and wish to speak at this hearing, I would ask you to fill one out in the foyer. And is Susan still in the room? You can bring it over to Tom Tanton or John Wilson here if you do need that.

I'd like to begin this today with the Staff's summary of the 1890 advisory group progress and like to -- who is going to represent Staff on this? Mr. DeAngelis.

MR. DeANGELIS: Thank you. I prepared some overheads to kind of walk us through what the process that the collaborative group has gone through, and I thought it would be appropriate rather than just hear my voice to also see something.

The first thing I think that's appropriate to cover is what is the charter provided from the committee to this collaborative group, and we were really asked to address two areas. Number one to provide stakeholder recommendations regarding administrative and expenditure criteria for the program.

I think as you all know AB 1890 specifies that the funds that are transferred to the California Energy Commission for public interest RD&D would be subject to administrative and expenditure criteria of the Legislature. And I think early on in the two hearings that this Commission held there were comments that stakeholders did want to provide input on that. So this was the first priority item on the table for the collaborative group.

The second area where the committee asked the collaborative group to work on was to put together a California public interest RD&D plan. And really what has happened with that area, that is a slightly lower priority in time frame since we have to get the recommendations on administrative and expenditure criteria into the legislator early in the legislative process, what has really happened with that is that the group has met and decided on a strategic level plan which I'll try to get into a little bit later in my comments at least in terms of the outline which is approved by the group.

Next slide.

Now in terms of the collaborative group, we have held three workshops to date, and there's over 70 different attendees who have attended the three different workshops representing over 50 different organizations in the State of California.

These, if I group these into stakeholder groupings, I would put the groupings in different RD&D institutions, such as the University of California, Electric Power Research Institute, various national labs. There are a number of different private RD&D firms in the State of California who focus on research and

development in energy. There are several public interest groups, such as the Natural Resources Defense Council, Union of Concerned Scientists, who have all been active in the process, and we have our state investor owned utilities and municipal utilities and various government representatives, not just at the state government level but also at the regional government level, also.

Next slide.

In terms of accomplishments to date, I would put them really into three categories. And I'll get into each of these three in a moment. The first one listed there is that we've defined collaborative issues.

Certainly one reason we collaborate is not just to reach agreements on the various topics within our charter, but also to determine where the key issues are and where agreements can't be reached. And there are some issues which have come up already in the process. I don't believe that we're through with any of the issues, and I'll cover those in a little bit.

There has been agreement on at least initial input to the administrative and expenditure criteria recommendations. And I'll review those. Those really constitute a mission statement and objectives.

And we have begun work on a strategic level plan. In fact we have completed an outline and really the mission and objectives which will be the initial input to the administrative and expenditure criteria also will be an important part of that strategic plan of course.

Moving on to the next slide, issues to date, I want to first say that there's no need for a decision from the Commission right now on any of these issues. But let me at least try to explain them.

The first issue that I have listed here is really a meaning of the term "energy efficiency." The context for the collaborative discussions of this objective was really the discussion on objectives which we were developing. And also, the first reference to the term "energy efficiency" was really in the RD&D working group report submitted to the PUC in early September. And in that report it stated that the primary focus of public interest RD&D programs should be energy efficiency, renewables and addressing environmental issues.

What really occurred in our discussion is: What does energy efficiency constitute?

There are some parties in the collaborative who believe that the term “energy efficiency” the focus should be end use energy efficiency and others believe in a broader definition of energy efficiency to include generation.

I think that what we have done we’ve had some extensive discussions. We haven’t yet reached agreement on this particular issue. I think where we will head to address it in the strategic plan, at least to have a discussion of the issue, so that later in the process certainly the Commission can make a decision on that particular issue.

The second issue which has been raised and at least has been partly discussed in the collaborative is the whether, which term to use in the mission objectives and also in the strategic plan. Should we be using electricity or should we be using the term “energy.”

After discussion it was decided to use the term “energy” for all of the objectives and the mission statements, even though the surcharge in AB 1890 is electricity, is from electricity ratepayers.

The primary reason is really the difficulty in drawing bright lines between electricity RD&D and overall energy RD&D. Using the term “electricity” might draw such a bright line even though much RD&D will have spillovers to both gas and electric.

And I think an example I’ve often cited is that if you do certain end use efficiency R&D, like develop a new advanced insulation, you could certainly apply that advance insulation to an electrically heated building. But also the spillover is that it provides savings to gas also. So the desire at least in the mission and objectives was to not draw a bright line between those in the RD&D program.

I believe that we’ll be discussing this in further workshops, and we’ll also address it further in the report which we will submit to the Commission.

I don’t think this one will be a substantial issue. I haven’t heard anyone yet say that the public interest RD&D program funded by electricity ratepayers should support gas furnaces and other more narrow types of gas related

RD&D. So I don't expect this to be a long-term issue.

The third area of issues which has arisen concerns administrative efficiency of the program. And I think it's very clear that the RD&D program administrator needs to have a very efficient administrative process.

Most of the discussions to date have really referred to the procurements and contracting process. And the issue has been raised, but this one has not yet fully been discussed. But you will see it addressed in the objectives which I'll review in just a few minutes.

Moving along, for the RD&D mission, first of all we decided on a mission statement that would provide over arching guidance for the public interest RD&D program. We also decided that the mission and objectives is really an integrated set which can't be separated and taken apart from one another. We also did not want to restate certain things that's in the mission also on each of the objectives.

So the mission here is summarized. This is not the exact wording, but the first bullet is really the direct mission statement, and you see it does provide that over arching guidance of improving the quality of life for California citizens and also having the key elements of the program providing environmentally sound, safe, reliable and affordable energy.

The second part of the mission is really just a restatement of the definition of public interest RD&D which is very consistent with the work, RD&D working group report to the PUC and is exactly what I think is listed as the definition in AB 1890 for public interest RD&D.

Moving along into objectives, we really put objectives into two different categories here. The first four objectives are objectives that relate to the overall public interest RD&D program and planning of that program. It gives guidance to those, a direction to the program itself.

The last three objectives, which are on the next slide, are really more organization and process related.

The first objective is to, again to summarize on this slide, this is not the exact language, but it's really a focus objective, provides focus to the program, and I

think we discussed the issue related to this. And the focus here, again that is agreed to by everyone, is energy efficiency, renewables and environmental issues.

The second objective is a balancing objective. It's quite clear from the collaborative discussions that stakeholders agree that this is not just a near-term R&D program. That there really should be a balance between risks and overall time frame and public benefits.

Certainly there should be a balance within the RD&D portfolio of near-term projects, which may well have lower benefits than some higher, to Californians, than higher risk longer-term R&D projects, and there should be a balance of those various types of RD&D projects in the RD&D portfolio.

The third objective is one that really addresses a concern we discussed collaboratively, and that was that this is not just a technology program. The definition in AB 1890 is to advance science or technology, and the real focus here is to develop a knowledge base created for public and private decision making.

A fourth objective is, and this fourth objective is one that the collaborative group did not reach agreement on the exact wording of this objective, but all of the wordings really do focus on the RD&D projects being connected to the market through both planning and also technology transfer.

So I think it will be up to the Committee to look at the three options that are presented and to select either one of the three or something in between all the three at some point in time in the future.

Moving along to the fifth objective, again as I mentioned earlier these last three objectives are more organization and process related. And in fact during our collaborative discussions at one point in time we had these objectives rather than called "objectives," we called them "guiding principles." But as we discussed them further, some thought that that would put them on the lower priority scale so we reworded them into objectives.

The fifth objective here, the first one on this page, is one that relates to decision making and providing public input through the decision making process and accountability overall for the program in its decisions. Whether it's in planning, project and program selection, and, of course, the very important review

and evaluation of the program which should be held periodically for replanning purposes.

The next objective is another balancing objective. And this is really an objective where the program needs to minimize bureaucratic red tape, yet also effectively protect the value of the public funds that are provided to these projects. So it will be a balancing objective.

The last objective is a leadership objective. Particularly leadership in coordinating with public and private RD&D end entities in the State of California, and also including the concepts that were submitted in another working group report, a combined working group report, to the PUC in October. And that is the integration of the public purpose programs, integrating RD&D with energy efficiency and renewables.

Clearly the energy efficiency and renewables programs are more market oriented, while the RD&D programs is advancing science and technology. And we need to build bridges between those programs so that RD&D is focusing on the correct holes in the technologies and in the markets that are being commercialized through the other programs. And so it's very important for this coordination between all of those programs.

Moving along with the other main product that the collaborative group was tasked to do, and that is the strategic plan, we have made some progress there. We have approved an RD&D plan outline. And I didn't include the outline here on this slide, but I did include really the main chapters that would be included in the outline.

There will be a chapter on RD&D policies, and that will include, and really the body of that chapter will be the mission and objectives which we've already gone through. There will be another chapter on the RD&D programs within AB 1890 and the public interest RD&D. And in fact right now the collaborative group, I believe earlier this week, there was a conference call to discuss the possible categories for these programs. When we get to a decision collaboratively on the various categories, then, of course, we will work out objectives and descriptions of those programs. And eventually there will be some discussion of eligibility and

project selection guidelines overall.

Another main chapter which will exist in the RD&D strategic plan will be on administration of the program. And that will include different funding mechanisms which will be utilized, coordination with private and public organizations throughout the state in RD&D. There will be discussion of and a proposal for a advisory and review committee structure for the program overall, and then some discussion of the periodic program evaluation and replanning of the program.

So that really encompasses the main body of the outline for the strategic plan which we hope to, we are scheduled to really try to approve, and this is shown on the next slide, by March 24 of this year. So we have a real challenge in front of all the collaborative parties to produce this strategic plan by this date.

We have already scheduled between now and March 24 four workshops and potentially two additional hearings to provide status reports back to the RD&D Committee of the Commission.

We expect, if we do meet the schedule on the 24th of approving this plan collaboratively, then the next main item on the schedule is for the Commission to review, evaluate this plan, hold a hearing between the 24th and June 25 and eventually adopt a strategic plan for RD&D, public interest RD&D in the state.

We do think that this will be a strategic level plan, and it won't cover all the operational details, so we expect that there will be an operational plan that will need to be developed during the summer period for full implementation of the program. Our overall schedule again is that we're hopeful that solicitations can get out in the fall of '97 so that when the money starts flowing in early 1998 we can begin with contract approvals by the Commission.

So that pretty much summarizes the status report, and we have many of our collaborators, I know, out in the audience, and I know if I've missed something they will speak up and certainly add to that.

Thank you.

PRESIDING COMMISSIONER ROHY: Well, thank you for a very

good summary of what appears to be significant work that the Committee has done and appreciate that. Both the work that the working group has done and your presentation.

I think on the schedule right now what we have is an opportunity for Commissioner Rakow and myself to ask a few questions of the summary to date, and then we'll solicit input from the other people of the group.

Would you like to begin?

ACTING CHAIR RAKOW: I'll begin with one question. On the administration on the contract streamlining, as we're calling it in the procurement process, have the working group members come up with some specific suggestions, or is it more general?

MR. DeANGELIS: I think that the discussions to date have been preliminary and are not yet completed. Most of the stakeholders are aware that the Energy Commission and its Staff have been going through a process internally here. They are aware of the, generally, that we are going through a process, and I think we've committed to the group to summarize the status of that process in one of our next two workshops.

In addition there are other proposals other than just the Energy Commission streamlining its process. There are other proposals which we know have been developed at least preliminarily, but there hasn't been a write up of those yet. So I think --

ACTING CHAIR RAKOW: Proposals by who?

MR. DeANGELIS: By stakeholders.

ACTING CHAIR RAKOW: Oh, I see.

MR. DeANGELIS: By stakeholders to address the issue.

ACTING CHAIR RAKOW: So will the Committee be able to see those proposals before the Committee and the legislative committee, before the Committee sends on to our legislative committee the suggested changes? Do you know?

MR. DeANGELIS: Well, certainly the Committee will be hearing very very shortly about the internal streamlining process. Now the other proposals I

certainly think the Committee should be able to hear that. I know that, in fact I'm sure, that those that will be proposing those options will be presenting it to each Commissioner.

ACTING CHAIR RAKOW: The reason I bring this up is that we are under some type of time constraint in taking to the Legislature any proposed changes that will need a statute change. And so we have to be aware of that. And this RD&D Committee, after they review and decide upon which changes they feel are important, we forward those to the legislative committee.

And it's our internal process who then puts them into language and finds an author and so forth. So there is some kind of time frame on it.

Thank you, Mike.

PRESIDING COMMISSIONER ROHY: I have a couple of questions on the material you presented and perhaps others, as we go through the afternoon, will comment also.

In your mission statement you mentioned both reliability and safety as part of the mission of the RD&D. I didn't see them in the objectives, perhaps they're buried into the categories, and like some comments on where they might occur in there.

MR. DeANGELIS: Sure. I think what the way I would address that is that we thought it would be very cumbersome to restate the mission throughout the objectives. And that's why I believe that what was submitted to the Committee earlier this week, in terms of mission and objectives, includes a narrative on it that was approved collaboratively. And then that narrative it said that this is an integrated set. You cannot take one part out and think that it's a whole. It's really a whole integrated set, and with having a safety and reliability in the mission statement it should be covered throughout all of the objectives.

PRESIDING COMMISSIONER ROHY: Thank you for the clarification there.

And my second question is the coordination that you mentioned, which I think is very good, was primarily within California. Do you intend to leverage funds with DOE where possible, or is there any possibility of that in the

thinking of the working group?

MR. DeANGELIS: I don't think we've had any specific discussions on that point, but I can't imagine that we wouldn't be meaning to include leveraging substantial funds, particularly from the Department of Energy.

PRESIDING COMMISSIONER ROHY: And the last comment on coordination would be with making sure, and I think the members of your working group, is the PUC continues to be an important part of this collaboration; is that correct?

MR. DeANGELIS: That is correct.

PRESIDING COMMISSIONER ROHY: Thank you.

I apologize from the Committee's point of view for our late start this morning. Our Business Meeting did run over. We had an important issue from a legal point of view that we had to discuss.

And we will be breaking for lunch, but I think we have time to start with our first member of the working group. And Carl Blumstein's name is up here first from the UC Energy Institute and wants to talk about mission and objectives.

Carl.

MR. BLUMSTEIN: Commissioner Rohy, I just wanted to be available for comment and discussion. So when I was informed the right thing to do was to fill out a blue card, so I've done so; but I don't have any comments at this point.

PRESIDING COMMISSIONER ROHY: Okay. That was quick. Thank you. We'll be back with you, Carl.

Al Pak from EPRI is the second card here.

MR. PAK: Good morning. Being that I'm a new employee at EPRI they don't trust me to make comments off the cuff, so I have a prepared text, and I'll try to stick as closely to this as I can.

PRESIDING COMMISSIONER ROHY: We won't tell if you deviate a bit from the prepared text, Al.

MR. PAK: Well, I was thinking about the chances that somebody back in Palo Alto would actually read the transcripts. They're fairly low, so I'll -- but I'll try as I said --

[Laughter]

MR. PAK: -- to stick to what I've got or what I've been given.

MR. TANTON: We'll just post the transcript on the Web site.

MR. PAK: Tell you that would be a bad idea.

MR. DeANGELIS: That means I can ask lots of questions, too, Al.

MR. PAK: First, let me say that the Electric Power Research Institute very much supports the work that is being done in the collaborative group. We have been a participant from the outset, and we intend to continue to be a participant. We think that the group has been doing a lot of good work and that most of its recommendations are ones that we support wholeheartedly.

With respect to the issues that are presented to you today in looking over the mission and objectives, EPRI would recommend that as you go through the process of evaluating the recommendations that the concept of flexibility be used as your watch word. In adopting the mission and objectives for the program we recommend that to the extent that you have choices here that you select words that encourage ideas and project proposals from the broadest range of interests and from the broadest range of participants.

There are a lot of firms and researchers that are out there that have not participated in the collaborative group, and they don't have any sense of the deliberations and the discrete understandings that went into the formulation of the words that you have. And as you publish these words for those people who have not been in the collaborative group, we recommend that the clear message that you have some sense of urgency that the clear message you convey to these people be that all good ideas are welcomed and that the best projects will be the ones selected by this Commission.

Our participation in the collaborative group has been directed towards providing a sense that inclusion is a better practice than exclusion and that merit is a better project selection criterion than are some of the preferential classifications that you see in the objectives before you. These operating principles, in our opinion, will give you the best opportunity on any given day to evaluate projects and to operate this program.

In that regard, we have three specific recommendations for you as you consider the words that have been presented by Mike's committee to you.

First, as to the options identified as Objective 4, this is the market connectivity objective, EPRI recommends the use of Option 4(C). The first two options are, in our opinion, too narrowly cast and may stray this program into the areas of research that are adequately provided for by competitive and regulated markets.

I would tell you that from our experience our program has become quite connected to the market, but at the expense of research, of longer term research and knowledge-building research. That is much to our lament.

And while EPRI and other market influenced institutions must pay greater attention to this short-term business planning and exigencies which dominates the thinking of our funders, we believe that you ought to take the passage of AB 1890 as a charter to do broader work than we can. We don't think you should lose sight of markets and market conditions, but on the other hand we don't think that you necessarily need to tie yourself as closely to them as we have.

And right outside the rooms where these words were developed we think that the first two options will present the wrong picture in some people's minds, emphasizing and maybe over emphasizing product delivery, while the third option that you presented is less prone to that criticism. You might even capture that to be a little broader, but I think we are satisfied that the language you have before you in Option 4(C) is acceptable and conveys the right ideas.

Second, there has been some discussion as to what should be done, if anything, in the area of transportation technologies. Despite the fact that your Biennial Reports routinely surface the fact that transportation is the largest energy consuming sector of the California economy and the principal cause of poor air quality in the state's dirtiest air basins, there's been some agreement among the majority of those participating in the collaborative group, EPRI not included in that majority, that transportation technologies should be excluded from your program.

When EPRI disagreed with that idea we were told that we could possibly sneak some of our transportation projects into other aspects of the program

by dressing them up as environmental quality programs or something else that might fit into one of the three preferred classes of research.

To give you an idea of the kinds of things we are thinking about at EPRI that might qualify for this program there has been much discussion in research circles, and more recently in the automotive industry, of the use of fuel cells as the next century's power plant for vehicles. When configured correctly and sized correctly the parked vehicle can then be used for distributed generation purposes in commercial and residential applications.

The language of Objective 1 is what concerns us. That language could be used to eliminate these or similar transportation projects. And we think it would be useful for the Committee and ultimately the Commission to give itself a broader flexibility than is implied by the language of Objective 1, and that we would recommend that you explicitly note some intention to go beyond the three classes of research and projects that are identified in that objective.

Not only would this serve transportation technologies, but as Commissioner Rohy just pointed out, although the mission identifies system reliability and safety as key missions or key aspects of the mission of this program, they are excluded from Objective 1. And I think that reflects some sense of the group that really we ought to be focusing our attention in three areas and not broadening beyond that.

We agree more with the mission than with the statements of Objective 1, and we, although there is, as Mike said, some efficiency in word smithing to eliminating the redundancy between the mission and the first objective, we think that in moving from the mission to the objective you may be casting a more narrowing sense about what you're really after in this program.

So we would ask you to review the language of Objective 1, and if not change it, at least note somewhere in some order that, and memorialize that you intend to give yourself a chance to judge projects by their various merits rather than their comportment with the three specific areas of research that are identified in the objective.

Now our third recommendation, as Mike pointed out, the working

group has consistently discussed and endorsed the advantages that could come through the use of a formal or informal advisory panel. That group would provide advice as to the directions of the various elements of California energy markets as well as provide you information as to the work in progress of other research programs.

I should note the EPRI has used such groups from our inception, and we believe that we have very much benefitted from the objective high-level criticisms and advice that we've received from the members of those groups.

To take the consensus one step further, EPRI suggests that some consideration be given to forming an advisory council using the foundation provided by the California Utility Research Council. The CURC has in the past drawn very large audiences to review the work being done by California's utilities, including the publicly owned utilities, and that council has also been used to hear and help formulate the policies promulgated by both this Commission and that other commission in San Francisco.

If the CURC's membership were expanded and its mission were broadened, we believe that its national reputation and its annual convention could be turned to assisting the Commission in the creation and operation of a well balanced, well rounded and well directed program. It is my sense, after having just attended the most recent meeting of the CURC, that it would welcome this sort of a mission.

I heard the lament that what was once an intellectual forum designed to discuss achievements and technologies has really turned more into sort of informal kibitzing about regulatory developments, and that that was really a poor waste of the talent that was accumulated in that room. The EPRI agrees with that, and we would suggest that, as we have said on many occasions, we think that this Commission should rely on the research infrastructure available to it in order to efficiently start up this program. And the CURC, in terms of its ability to translate itself into an advisory group, is the type of infrastructure that you can readily utilize under the right conditions.

That concludes my remarks. I think I've pretty remarkably stayed with

the text I was provided.

If you have any questions, I'd be happy to answer them.

PRESIDING COMMISSIONER ROHY: Thank you, Al.

Do you have any, Commissioner?

John? Tom?

MR. TANTON: Al, with respect to your last comments about CURC providing advice to this Commission and to the PUC, do you see that the research council perhaps transitioning itself to become effectively a two-way communication tool so that the regulatory policies and the research policies of both commissions can be sent out to the research community through CURC as well?

MR. PAK: I think that's an appropriate use. And it's certainly the one place that we can rely on both commissions being in the same room. So in that regard, yeah, it can be used that way.

MR. TANTON: Early in your remarks you suggested that there are some perspectives that haven't been incorporated or involved in the collaborative process, and I think it's probably fair to say that the collaborative process has grown in its participation and view points that are presented over the last year and a half or two years.

As we move forward into implementation and both commissions are relying greater and greater on some advisory group or collaborative process, is there any way that you can suggest that we could utilize to bring in those other view points that currently haven't been participating?

MR. PAK: Well, the collaborative group, I think, has done a good job of that. So continuation of that sort of a process, and, frankly, you have a very open commission process and committee process so we think that these kinds of forums would be very useful for those who, A, can't participate in the collaborative group on an on-going basis or in an advisory group. So we actually think that you're already set up to do a lot of that.

But the use of a focused advisory group with periodic scheduled meetings will sort of create that process for you.

As I said, the annual convention of the CURC formerly routinely drew

100 participants as well as speakers from around the country. And that's sort of the thing that you can recreate given the right encouragement.

Thank you very much.

PRESIDING COMMISSIONER ROHY: Mr. Abelson.

MR. ABELSON: Thank you, Commissioners. Just a brief comment on one aspect of Al's statement.

With regard to the notion of whether or not this particular program, which is funded by ratepayer surcharged funds, can properly and lawfully expand into the area of transportation, which this Commission is deeply devoted to as an area and supports in many regards, is questionable.

It is questionable because of the fact that the source of the money is electricity users, not automobile drivers, not general taxpayers. And the PUC, pursuant to legislation that gave some authorization to use ratepayer funds a few years back, conducted extremely exhaustive hearings which this Commission participated in. I personally represented the Commission in those hearings. And they spent a great deal of time concerned about what ratepayers should be asked to pay for in the transportation sector.

They concluded about a year ago that ratepayers should support limited projects that affect transmission and distribution. And they authorize specific monies which are going to continue to be allocated as I understand it to the utilities to spend in that area. Beyond that the more robust programs, while they may be of great technical and public merit, were viewed as outside the scope of that which was appropriate for ratepayer funding.

The RD&D working group that was established under the PUC directive prior to AB 1890 I think acknowledged that these funds needed to be restricted that way. AB 1890 I will concede does not expressly address the issue, so I think that would be a fair point for anyone to make. But to the extent that there is reticence, it's because of this context.

And remembering that AB 1890 is implementing electric industry restructuring, that I would urge caution and close coordination with the PUC on the one suggestion particularly. The others I think are certainly very very positive and

constructive suggestions.

MR. PAK: If I could just, Dave anticipated what I would say, the language in AB 1890 is not exclusive with respect to what kinds of technologies you can fund. And we can at the time that anybody would make a proposal, and we may do that ourselves make a proposal related to transportation and related technologies, debate whether or not this is the appropriate fund to be used for that.

But I think as Mike pointed out there are issues that involve this question of: Are you going to be inclusive or exclusive when you start the program and design it? The issues of: Should this be an energy program or an electricity program? Should you deal with production efficiencies or consumption efficiencies or both?

EPRI's position has always been that you should take a look at the broadest range of projects and trust your own judgments as to the merits of the projects that are before you. But if you indicate from the get go that you are going to be excluding certain types of things, you may avoid or you may preclude your consideration of some of the better projects that would serve the California economy and its citizens best.

As I said we can debate whether the ratepayers is the right ones to fund delivery of those benefits, but in my remarks I was merely trying to suggest that you not, as an institution, preclude or narrow your program in such a way from considering those things.

MR. TANTON: If I could have one quick follow up, Al. Is part of that dilemma sort of the applications research versus the basic research dilemma?

If, for example, you're doing research on fuel cells, I mean fuel cells obviously have a potential application in stationary as well as transportation applications, if one is inclusive in and embrace the concept of doing some fuel cell research and control the fuel cells and all those sort of things that go along with them, the fact that it might be applied in the transportation application should not be used to exclude it if it might also then be used in a stationary application for electricity production.

Is it that kind of dilemma that you're trying to help us avoid?

MR. PAK: Yes, exactly.

PRESIDING COMMISSIONER ROHY: Thank you, Mr. Pak.

Appreciate your comments, and, Mr. Abelson, I thank you for your comments on those.

At this time I will declare a lunch break of one hour to return at 1:15, and we'll begin with Mr. Hay directly. So you're aware that you're first up.

[Luncheon recess taken from 12:15 pm to 1:23 pm.]

PRESIDING COMMISSIONER ROHY: I'd like to resume our hearing on Research Development.

Before we begin with Mr. Hay, I'd like to indicate that we did receive a press release from the CPUC, and I've been urged to be very cautious about it. It is a press release, but it indicates that they did in fact act on the proposed decision.

And on RD&D it says Assembly Bill 1890 authorizes sixty-two and a half million to fund public interest research development and demonstration programs. The CPUC has allocated 61.8 million to the CEC for public interest R&D not related to transmission or distribution with 29.7 million coming from PG&E, 28.2 million from SCE and 3.9 from San Diego Gas and Electric.

Of the remaining 700,000 allocated to the utilities for public interest R&D related to transmission and distribution, 300,000 will go to PG&E, 300,000 to Southern California Edison and 100,000 to San Diego Gas and Electric.

And then the final comment, they have many other paragraphs in here, it says a workshop will be scheduled soon to develop a roadmap to implement today's Commission decision.

So to the extent that we know anything, that's what has come in on the wires.

Shall we resume with Mr. Hay. I believe your company's name is CAGT LLC now.

MR. HAY: Yes, yes. I'm George Hay, the President of CAGT LLC, which is a small private company which manages the CAGT Program, the Collaborative Advanced Gas Turbine Program.

I have written comments that are available to anyone who would like

to request one. Give me your card. But they have been submitted.

The gist of the comments goes to the heart of will competitive markets take care of new generation RD&D, at least in the short run while we're transitioning to competitive and efficient markets.

CAGT LLC recommends that the RD&D Committee include clean advanced generation technologies under the public interest RD&D program. Technologies such as advanced gas turbine have the potential to improve electric supply system efficiencies as well as generation efficiencies while lowering electric supply costs and improving system flexibility and reliability.

In particular CAGT LLC believes that the potential of higher efficiency intermediate load and renewable advanced gas turbine system concepts are worthy of further development and testing. If the renewable hybrid concepts meet technical and cost performance expectations, it could improve the long-term sustainability of renewable technologies and currently operating projects.

We are aware that the CPUC has taken the position that generation related RD&D should be addressed by competitive markets. The experience of CAGT firsthand at administering a collaborative effort to develop advanced gas turbines provides concrete evidence that without intervention the competitive markets will not provide adequate support to such advanced generation RD&D for the following reasons:

First is the market uncertainty. We aren't in competitive markets yet. The rules for new investment are uncertain. People aren't buying gas turbines in droves right now, and that put significant constraints on gas turbine suppliers to conduct RD&D and also to know what attributes will be valued in the future versus the more traditional extrapolate past experience.

So the uncertainty on markets and constraint on gas turbines RD&D, gas turbine suppliers have dropped gas turbine prices 10 to 20 percent in the last few years, and that makes it very very tough to introduce new technologies for suppliers. Essentially suppliers at the moment are focused on more of off-the-shelf technologies and getting rid of excess capacity.

The dramatic reduction in utility and other RD&D sources for new

generation has been dramatically illustrated in the various discussions here by the California Energy Commission. I've lived it first hand at PG&E. EPRI, GRI have had similar dramatic reductions, and the DOE programs are under attack. And the question is who's going to do new generation RD&D?

Further, some of the new players that may benefit from new generation RD&D, independent power producers, are very focused right now on projects in the near term. They don't want technical risks in their projects unless somebody pays substantial subsidies for them. And as the market evolves, historically IPPs are focused on long-term power contracts, long-term gas contracts with a fairly predictable future for going to the banks.

In the current environment they'll be dealing with merchant plants. No one guarantees them a market for power. No one guarantees them a gas price. And that's a very different world. And relative to their ability to take technical risks, the IPPs, really, that's the last thing they want to do. Consistent discussions with IPPs indicate they don't want to take risks on first-of-a-kind technology.

At the federal level the Department of Energy Advanced Turbine Systems Program is a good model. They're funding advanced turbine RD&D, and it's a very successful program. However, it has some gaps. Currently it's focused on really base loaded technologies, commodity power technologies and sizes under 20 megawatts and over 400 megawatts, and there seems to be a major gap in the mid size range in that program. Particularly for things relating to renewable hybrids and intermediate load technologies that would benefit California.

The DOE and CEC are planning to host or are planning a workshop in early March to discuss these issues and these markets and try to identify potential solutions and/or needs.

RD&D funds are particularly needed during the transition period. The next four years. We aren't to competitive market yet, and essentially if we don't RD&D on new generation during that time frame, California will have to accept whatever technology is available today largely for those markets. And in California given the large number of aging fossil steam units, which is why CAGT was created in the first place, once you replace them you do it once and you're stuck with

whatever that technology is for quite a number of years. So the next four years are critical.

If California takes the lead in developing and proving these technologies, it can expect to take advantage of growing domestic and export markets for clean energy supply with benefits for economic development in California.

We urge the CEC to consider additionally in its process consideration of cross cutting high efficiency and renewable generation program initiatives with equal or greater public interest benefits than smaller directed project opportunities. The hope is that things that address many objectives versus very narrowly focused boxes are given equal consideration.

Those conclude my comments.

PRESIDING COMMISSIONER ROHY: Thank you, George.

Commissioner, do you have questions?

John?

I just have a short one, George, and you mentioned the export market. No such devices are built in California today. How would that work?

MR. HAY: California, I can see it very clearly that the process that's emerging in California, which really created the independent power industry, are quickly followed by other parts of the U.S. So very frequently the companies that are in California that take advantage of the new concepts and applications of that technology will very quickly find markets for their services in other parts of the country and the world.

PRESIDING COMMISSIONER ROHY: Thank you.

MR. HAY: Thank you.

PRESIDING COMMISSIONER ROHY: Thank you, George.

Our next blue card here is from Mr. Steven Vosen, did I say that correctly?

MR. VOSEN: Vosen.

PRESIDING COMMISSIONER ROHY: Vosen, excuse me, from Sandia National Laboratories. And we spoke earlier at the break about the DOE issues, and I

hope you will address some of those in your comments to us.

MR. VOSEN: Right. I didn't have a prepared statement, but I just had a comment because you raised the issue of leveraging the CEC funds with the DOE. And I've been tasked with keeping an eye on the proceedings. I'm part of the advisory working group.

And our interest is leveraging also. We realized we're not very good at taking a lot of the technology that would develop and commercializing it, and we see the opportunity of working with the State of California as a way of providing some meaning to some of that work and also leveraging from our standpoint.

So I work out of the Combustion Research facility in Livermore, and I'm representing that facility and also the renewable energy group down in New Mexico.

That was basically it. I thought you might have some other questions about those programs.

ACTING CHAIR RAKOW: Yes, you mentioned that the DOE or are not very good at marketing, getting things from the shelf to the market. Is your interest then in leveraging just in the commercialization or would it have more of a focus on the commercialization of the RD&D projects?

MR. VOSEN: I think we have to wait to see how things develop. I've talked to some of our managers about the possibility of identifying certain technologies that may be of interest to California companies. And maybe when the solicitation comes out, you know, say that we have this technology and see if we could couple in with a company that would be interested in bringing that to market.

PRESIDING COMMISSIONER ROHY: I'm aware in the past at least, I've not kept up currently with your combustion work, but you did a lot of work with industry. You did basic research, but you had industrial partners.

Could you elaborate a little bit on how that works to get some of the technology that was developed into the marketplace?

MR. VOSEN: Well, a lot of our work with industrial partners was done at user facilities that we have set up at Sandia. A good example of that is we have a burner engineering research facility where makers of industrial burners will

bring in the burner components, and we'll do testing, advanced diagnostics on the burner, and look at ways of improving the use of that.

And then generally the people that come in and do the testing own the technology that's we call it work for others. So sometimes there's some concern about who owns the technology that's developed, and generally that stays with the person who brings in the equipment.

We also do work where we'll go out and using the DOE funds go out and work with companies who do development or diagnostic work out in the field, and that also happens.

I don't really see the CEC as a way of bringing money into Sandia. It's just we have, there's probably a lot of programs where, like the advanced turbine projects and other things, where we have the ability to muster DOE money and manpower, and then when a California company could be building equipment and there may be some testing that goes on at one of the national labs; but there wouldn't be a lot of mixing of those resources.

PRESIDING COMMISSIONER ROHY: My curiosity went to the fact that I believe some of the work and diagnostics you've done would fit under the science and technology provisions of 1890 in the sense that it truly is new technology that you're developing.

MR. VOSEN: Right.

PRESIDING COMMISSIONER ROHY: Yet I was concerned how you, just as a model, how that gets from your laboratories into the marketplace because that will be an issue that we face. So we should talk later perhaps on how that works.

MR. VOSEN: Well, I mean we have done work developing new diagnostics and the work that gets patented, and then there's some sort of agreement. I mean if somebody's putting in their resources, we can give them license to, you know, from the DOE standpoint. Although we are getting more and more involved in marketing and trying to keep our intellectual property, there's still a lot of room for collaboration.

PRESIDING COMMISSIONER ROHY: Thank you. Thank you very

much.

Betsy Krieg, PG&E.

MS. KRIEG: Good afternoon. I'm Betsy Krieg with Pacific Gas and Electric Company. Just had a couple remarks.

PG&E appreciates the opportunity to comment on some of the proposed administrative and expenditure criteria. Wanted to be sure that you understood that we fully support the mission and objectives that we've developed in the working group. And also wanted to point out that historically PG&E has conducted a wide range of R&D activities that have benefitted California ratepayers and all California citizens.

And while we're fully supportive of AB 1890 stated intent to maintain a strong energy research development and demonstration program as we move to a market based economy, the utility still has a lot of interest in maintaining technology development activities. So as you move forward in developing administrative and expenditure criteria to submit to the Legislature, we have a couple things we hope you'll keep in mind.

One is we'd hope that the criteria would not preclude continued utility funding and involvement in transmission and distribution research which has general application in the utility industry.

For example, PG&E has several projects to develop new algorithms to optimize transmission resources. The success of these projects will result in new tools which can be used by the independent system operator to benefit all Californians. But the tools can also be used by individual utilities to verify that the operations of the ISO are in accordance with any constraints and operating protocols adopted by the ISO Oversight Board, for example.

And that leads to the point which is that while PG&E initiated these projects for the benefit of our own ratepayers, we believe that all Californians will end up benefitting if the results get applied statewide.

And let me parenthetically recognize that the working group hasn't really discussed transmission related research and how to support the ISO. This is just an example of something that obviously benefits everybody in California but

utilities have traditionally funded.

The other point we wanted to make is that in the past the California Public Utilities Commission reviewed and approved all of PG&E's plans for such transmission and distribution projects. PG&E recommends that the CEC work with utilities to continue this kind of research with the understanding and agreement that all the results of that research would be made available to the CEC and would be distributed by something like the CEC Publications Office.

Traditionally PG&E publishes reports and makes them available, but in the paradigm it might make more sense for the CEC to be the major purveyor of that kind of information.

The second point we wanted to make is that whatever criteria you adopt we would hope that you would recommend to the Legislature that continued funding of such collaborative organizations as the Electric Power Research Institute would continue somehow, that PUC authorizes regulated utility funding of these programs, and PG&E currently contributes three and a half million dollars to EPRI for access to research results relating to specific subjects such as disaster planning, commercial shelters and so forth.

PG&E recommends that the administration and expenditure criteria that the CEC advocates should include funding for these collaborative organizations for the 1998/2001 time period so there's some continuity of the research funding.

Third point. We, at PG&E, really want to be sure that the criteria permit the continued funding of environmental research. Some of the things that are currently managed by PG&E and other utilities.

For example, PG&E works on a project called Regional Ambient Aerosol Study, otherwise known as RAAS, and there's also an OSPECTS project which is looking at air quality in the San Joaquin area. We have funded that and participated in that many years, and we would hope, since it is, we truly believe it's a public interest program, the CEC would pick it up and continue to fund it.

Finally, the criteria should explicitly recognize the importance of coordination and cooperation between the energy efficiency independent administrator and the new energy research California public interest RD&D

program. Close coordination and cooperation to define research needs for energy efficiency market transformation efforts will assure optimum use of the AB 1890 RD&D funds.

PG&E believes that the public interest RD&D program can continue to provide benefits to Californians despite the transition of the electric industry into a more competitive marketplace and that California utilities can play an important role in providing some of the public interest RD&D.

We appreciate this opportunity to share these initial thoughts and look forward to continuing to work with the CEC Staff and other members of the RD&D working group.

Thank you.

PRESIDING COMMISSIONER ROHY: Thank you, Betsy.

Commissioner, do you have a question?

ACTING CHAIR RAKOW: No.

PRESIDING COMMISSIONER ROHY: I have one short question on your first point with regard to T&D research that you're doing algorithms. It is almost irrelevant to this conversation, but I had to know. Are you doing that in house, or is that through a contractor?

MS. KRIEG: Through a contractor.

PRESIDING COMMISSIONER ROHY: Thank you.

Tom?

MR. TANTON: I just have one quick question, Betsy. You refer to one example of an environmental, or actually two examples of environmental research kind of things that you'd like the Commission to pick up as well as some other things you'd like to see continued to be funded. Does PG&E have a list of those projects that they can provide the Committee or will provide to the Committee in the future so? I mean we will have to kind of search them out?

MS. KRIEG: We're developing a list. And part of what we've been doing is waiting to see what was happening with the proposed issues and decision and things like that because we wanted to have a reasonably good understanding of what we thought the CEC might pick up. And then we thought we'd meet with

appropriate environmental staff and others to say, okay, here's what we're doing, which of these programs fit what you think you will continue. And then try to figure out how to keep the funding going.

MR. TANTON: And that would go for projects sort of outside the environmental stuff as well?

MS. KRIEG: Well, the environmental stuff is of particular concern because there are a lot of energy efficiency advocates in the working group, there are a lot of renewable energy advocates in the working group, and the environmental community is not all that well represented. And we just want to be sure it continues to stay on the table.

MR. TANTON: But the representation they do have there is quite strong?

MS. KRIEG: Oh, yes, we have NRDC and Union of Concerned Scientists, but it's a different level than actually funding research projects.

MR. TANTON: Thank you.

MS. KRIEG: Thank you.

PRESIDING COMMISSIONER ROHY: Thank you very much.

Frank Spasaro, SoCal Gas. I have trouble following the names of all your organizations these days. Right, I know you're called The Gas Company.

MR. SPASARO: The Gas Company, Southern California Gas Company, yes. Either one will work.

Thank you, Commissioners. Originally I didn't have a whole lot to say, but just a couple comments that I had through listening to some of the folks here.

I wanted to support the comments that we heard from Al Pak of EPRI. I think the issue of being flexible as we move forward with all this funding criteria and such is going to be a real key to having a successful program. And as a member of the original working group, I thought we moved forward when we developed a lot of our criteria based on that one premise that we were going to be flexible. So I'd like to make sure we continue that.

One of the items on the objectives, Item Number 4, there are three choices in there right now. To be honest with you, I'm not really sure that any one

of the three are specific enough that they're going to provide any value to anybody in really trying to do anything with them. So I would support (C) or (B) or (A). I really think they still need a lot more work to get really specific.

For example, I think it really leaves open the question about how commercialization fits into all of this as I read that. And I know that that was a very controversial issue in the original working group. I believe it still is a very controversial issue, and I think that's one that needs to get addressed because certainly commercialization could overwhelm this RD&D program.

I think the real issues that we're going to need to address are still ahead of us. And that's such things as budget allocation, project selection criteria. And that's probably where we really need to be focusing a lot of our efforts. I think what we've done so far sets a really good foundation so we need to move forward with a strategic plan and really dig into this selection criteria.

And lastly, the concept of using the CURC as an advisory panel I think is a really good one. We plan on having a meeting. This year Southern California Gas is chairing CURC, and we plan on having another meeting in the approximate July time frame where I think this would be a good opportunity to bring that up on how we might want to do it, particularly with the process of the working group and where the status might be at that time, see exactly how we might want to do that. So I would encourage people to be involved in that process.

I did get a chance to talk to our San Francisco people just a few moments ago about more clarification to the decision. There wasn't a whole lot on RD&D other than what you said. It did specify, though, that the electric utilities could go to the Energy Commission and work with the Energy Commission about trying to get funds for real system reliability issues. So it did speak specifically to system reliability.

Other than that it was mostly changes to the energy efficiency stuff. So if anybody's interested, after the meeting I can tell you what I heard. Otherwise, thank you very much.

PRESIDING COMMISSIONER ROHY: Thank you.

Commissioner, do you have questions?

Thank you very much.

David Berokoff.

MR. BEROKOFF: Frank did a great job.

PRESIDING COMMISSIONER ROHY: Thank you.

Jane Turnbull.

MS. TURNBULL: Good afternoon. I'm very pleased to be here today.

I have my own company now. I have a background working for the utilities and for EPRI. Now I am the small business representative on the collaborative and have been funding my own way to the meetings and speaking as an individual and trying to represent small business and the concerns of small business.

PRESIDING COMMISSIONER ROHY: That's very admirable. I'm glad you're there.

MS. TURNBULL: First of all, I would like to commend the Staff. I think they have done a truly superb job. These meetings have in some occasions been somewhat painful, and they certainly have not been brief. But they have hung in there, and I think have put together a fairly representative product at this point.

One of the parts of the mission statement that I feel strongly about is the fact that it's important for California to become a national and international model for how R&D should be conducted. If this is to be the case, I think it's important that California learn from other examples being carried out throughout the world.

In particular those that are being sponsored in the European countries. European Commission has a very extensive renewables and energy efficiency program. The dollars going into that are three or four times greater than any research in this country across the board.

The example that I would like to point out is that this is shot gun research. The monies are being spent largely to assuage political issues there, and the politics of spending the money is more important than the technical results. I caution against this in this country.

I think what's happened is that they have sacrificed the opportunity for

broad and systematic planning and priority setting and made politics a larger issue.

I also would like to make the case that there is a need for a general agreed upon strategy for fostering the potential for commercial viability of these technologies. I personally put in Option Number (B) or Option (B) because I think we do have to look at what is practical in the near term. What are the international markets? What are the California markets for these technologies?

On the other hand, I also endorse Betsy's comments about the very important significance of the environmental issues and making certain that the environmental issues are considered as an integral part of this overall portfolio.

In terms of the need for a strategy, I guess I'm bringing this to the Commission's attention based on my own personal experience. I did a lot of work over the last three or four years in the area of biomass integrated systems and was involved in feasibility studies supported by the Department of Energy and by EPRI.

One of the lessons to be learned from that is that the need to look at these systems as fully integrated systems, not to piecemeal them out or to look at individual technologies, but to look at the whole. Because the economic viability is really a result of the entire system, not a component of the system.

I also want to note the objective in the series of objectives that points to the importance of bridging the R&D program with the renewables and energy efficiency programs. To the extent that emerging also is pre-commercial, that will allow for more of the R&D funding that's exclusively in the R&D package to go for somewhat longer term funding.

I agree with Al Pak in the sense that this should not be a totally near-term portfolio. We do have to look at the risk and the time elements. But a lot of that can be taken into account as the tie to the existing or the other programs is put in place.

The last point I would like to make is I think there is a need for clarification in terms of whether the two out-of-state utilities that do serve California customers do have a role in the R&D support efforts. Both Pacific Power and Sierra Pacific do have California customers, and my understanding is that they do not have a role in the support of this program.

Thank you very much.

PRESIDING COMMISSIONER ROHY: Thank you very much for your comments.

Let's see, Max Sherman, Lawrence Berkeley Laboratory.

MR. SHERMAN: Thank you. My name is Max Sherman, and I work for the Lawrence Berkeley National Laboratory.

I'd like to address my comments today to some structural issues having to do with this new institution that we're creating, and they come from my experience as both a researcher and a research manager doing public interest energy R&D at the Lawrence Berkeley Lab.

I think there are two key things that we have to keep in mind to make a successful public interest R&D organization. By far the most important can be summarized by saying we're after winners. We're trying to generate winners that are winners for the public and presumably for some private sector bodies within the public.

These winners can't happen without a strong management by the organization that's managing them. It's insufficient usually just to pick a research project based on a solicitation and assume that you have a winner. It takes shepherding, and it takes work, and it takes attaching the research results to the private sector, to the marketplace, appropriately to the role in the progression.

At Lawrence Berkeley Lab we've had some mild success doing this over the years. It's very difficult to evaluate winners until enough time has passed that you can do it. Since we've been in this business for about 20 years, we have the luxury of being able to do that to ourselves.

And one of the things I attached to my comments was a document called "From the Lab to the Marketplace" which documents how we connect R&D results to the marketplace and how we generate winners. It's a tale of essentially four winners. Two hardware and two software winners which were funded by the Department of Energy from about the late 70's to mid 90's. The total investment was something like \$70 million in these four winners. And the current savings, annual savings, is about \$1.5 billion nationwide, net. So these have long ago paid

for the entire DOE R&D investment in buildings.

And so the way we do this is the way I think one should consider doing that for the State of California. It's one of the ways that we can make the state be a leader and the model that Jane just talked about.

To go over some of the more details I think that of the Objective 4, which is the one that has (A), (B) and (C), Option (C) is the one that I think is closest to recognizing this way of doing things. Of benefitting the economy overall and taking the marketplace and making sure it has an appropriate role. Research has to be market connected, but R&D usually isn't very successful, public interest R&D, usually isn't very successful if it's market driven.

I have a few comments on some more structural issues that I think haven't really been addressed by the advisory group but should be. One of which is that AB 1890 talks about stranded benefits. The utility R&D programs have been funding research that has a great deal of public interest content to it, but that's all going to stop very soon. I think a key way of making sure that we don't lose those benefits is for the Commission to undertake a review as soon as it can to determine which of these have enough public interest content to fund and to continue. Many of these programs, if they're allowed to stop, we will lose the invested asset that is the benefit.

This is in distinction to the way some people think about funding R&D which is you put out a big solicitation and you look what comes back. As a matter of fact in a more steady state environment public interest R&D institution spends very little of its money getting new project that way. It spends it investing in its winners. As it finds its winners, it invests in them year after year in a fairly steady rate until they get to the point where they can be taken over.

So the solicitation in the steady state is a very small component of it, but yet it's the one that seems to be thought of by many people.

Lastly, I wanted to make a specific comment about DOE in the national laboratories which is an important criteria you should consider. There's federal legislation which inhibits the national labs from responding to open solicitations. That means it's going to be very difficult unless something special is done for the

state to be able to tap a lot of the resources of the national laboratories.

There are various ways around this. There's cooperative R&D agreements with DOE that allow for these things to happen. But if things like that don't happen, the way that the national labs will be used is if DOE funds them directly.

I think this would be a mistake for the state because rather than leveraging funds from DOE, DOE would contribute by donating the services of the national laboratories. Which is fine as a national laboratory employee, but I think the state would do better by having control of the money and deciding how the national laboratories could benefit the state than having DOE decide how the national laboratories should benefit the state.

So I would urge you to consider that as one of the criteria over the next few months. And with that I think I'll end my remarks.

PRESIDING COMMISSIONER ROHY: Thank you very much. Again, I like to pick up on words, and we've talked to some of the folks from Lawrence Berkeley Laboratory on this very subject perhaps in other venues here, but picking winners is very difficult at the beginning, and, in fact, some of your most successful projects were ones that were not easily recognizable as winners at the beginning. At what point in the process do you see the winners being picked?

MR. SHERMAN: Well, winners have to be picked all the way along, and it requires a good management structure of the institution. It requires the research managers to have a good sense to be able to take those risks early on. Anybody can pick the winners ex post, but evaluating projects all the way along and deciding which ones to cut and which ones to invest more in is really the key quality of a good research manager.

It's not just picking proposals. Proposals are very difficult to look at and determine which are the real winners. That's just how you start the game. It also requires management to be a little bit more hands on.

If you're going to develop a working relationship with your winners, you want the research managers to be able to work with them. And when they start going astray to help steer them back. And when they're hit a hot point, you want to

be able to pour more resources in. So that's really a staff issue of having good people who can do that and who are willing to take risks they're going to be wrong sometimes.

There aren't very many winners. A few percent winners is all you need. As I mentioned there were four winners here which paid for the entire building's research effort of which there were hundreds of projects. So that's all you need, but getting them is very difficult.

PRESIDING COMMISSIONER ROHY: Thank you.

Commissioner? Tom?

MR. TANTON: You referred to the continuing process of sort of picking who's winning and where to invest more and where to cut out. Do you see that as a valuable function for the advisory group that I think Mr. Pak referred to earlier that it's not just within the research management group, but it's a broader participation?

MR. SHERMAN: Well, you need advisory groups at many places along the way. And I would say, yes, except one advisory group is usually not a good idea. The kind of advisory group that works well when you're in the demonstration phase of a technology is one that's very closely connected to the market. The advisory group that is better in the earlier phases have broader less market related connections.

So I would say that a single advisory group is not good for the entire continuum, but the idea of advisory groups is very helpful because it gives reassurance and some quality of control to the entire process. It's a check for the Commission or the board of directors or whoever's going to be in charge to have some faith that their management staff is doing a good job.

MR. TANTON: I didn't understand Mr. Pak's remarks to suggest a single advisory group for the entire continuum.

MR. SHERMAN: No, I'm not sure that he did, but very many people have that model in mind.

MR. TANTON: Okay. I appreciate that clarification. That's very important.

Thank you.

PRESIDING COMMISSIONER ROHY: Thank you very much for your comments.

Are there other people here who wish to speak at this point who have not?

Please, Ms. Carter.

MS. CARTER: Actually do have my blue card here. I can give that to you if you really want it.

Sheryl Carter from the Natural Resources Defense Council. I wasn't sure that I was going to make any comments today, but I just have a couple.

PRESIDING COMMISSIONER ROHY: That's why you had your card at ready.

MS. CARTER: Exactly, it's all filled out and ready to go.

I want to first of all join with Jane. If she didn't do it, I was going to do it in commending the Staff with the great job that they've been doing. I've heard our group referred to, or the chore of dealing with our group referred to, as herding cats. I don't know that we're that bad, but I know that it's really a challenge.

I want to say up front that NRDC fully supports the mission and objectives presented today. And I appreciate Betsy and Jane both mentioning the importance of environmental issues. I certainly appreciate and definitely concur with their comments.

I don't want to get into the debate about the specific projects that should or shouldn't be funded through this charge. We believe that these decisions will become much more clear when we, the working group, has developed the project selection criteria, which I believe we're probably going to delve into on Monday.

Therefore, we agree with Al Pak that the objectives language should not be exclusive but rather should be inclusive. And we believe that the language that's there right now is inclusive.

Now while we shouldn't be exclusive, we should be careful not to be too scattered. We must have a focus. The previous RD&D working group recognized this by including the language that we have adopted here in Objective 1

that indicates a focus, and I stress this is not exclusive language, on energy efficiency renewables and environmental activities. This excludes nothing and all projects will still be based on merit. So I just wanted to make that perfectly clear.

We also echo Al Pak's recommendation that CURC be used and expanded in their mission and membership. This is an excellent way, we think, to continue taking advantage of the extraordinary expertise and infrastructure that California's built up in this area.

And as far as the three options for Objective Number 4, we're going to weigh in with Objective 4(C). I think that Max articulated the reasons for why quite well so I won't go into that again.

And those are all the comments I have.

PRESIDING COMMISSIONER ROHY: Thank you very much for your comments.

MR. ABELSON: Commissioner, if I might just say one thing at this point.

I don't want to turn this into a mutual admiration society, but I do think it's important for this Committee to be aware of how strongly NRDC and the Union of Concerned Scientists and several other parties have stood in the forefront in terms of supporting public interest RD&D. It is obviously something of great concern to this Commission, but I think which only of concern to this Commission because we believe there are many public parties and public entities that do care about it, and I'd just like to take the opportunity to acknowledge that at this point.

PRESIDING COMMISSIONER ROHY: Thank you.

Are there other people here that wish to speak? I have a -- oh, yes, Mike Batham.

MR. BATHAM: My name is Mike Batham of the Staff. And I was contacted late last night and then faxed this morning some comments from Scott Samuelsen from the University of California, Irvine, and he had asked that it be both submitted into the docket and then presented to the Committee.

What I'd like to do is to read a small piece of what he has and then summarize the rest of it just for the record. I quote:

“My name is Scott Samuelsen. I am the Director of the UCI Combustion Laboratory and Professor of Mechanical, Aerospace and Environmental Engineering at the University of California, Irvine.

“My remarks address the following objectives of the ‘Proposed Administration and Expenditure Criteria.’

“Objective #1: Development and implementation of a robust public interest RD&D portfolio of projects that addresses California’s energy needs and primarily focuses on energy efficiency, renewable energy technologies and environmental issues.

“I urge that this objective be interpreted to fund technologies that will substantially address and yield exceptional (1) environmental benefits, and (2) energy efficiency benefits. Fuel cell technologies are a primary example.”

He goes on in his letter to explain what some of the benefits of fuel cells are including the energy efficiency environmental aspects and the fact that it’s a technology that has export potential.

He closes his letter with the following paragraph, and I quote:

“The research and development program under AB 1890 should direct substantial attention to advanced power generation strategies, such as fuel cells and fuel cell combined cycle systems, that yield exceptional energy efficiency gains and exceptional environmental benefits.”

I think the thrust of what he is submitting comments on is really to make sure that the program is interpreted in a broad sense and does allow energy efficiency to be interpreted to include both generation technologies as well as end use technologies.

PRESIDING COMMISSIONER ROHY: Thank you very much, Mr. Batham.

Do you have other comments? People who wish to comment on this? Mr. DeAngelis, do you have closing remarks from the Staff’s point of view?

MR. DeANGELIS: I think the only closing remarks I think we would have is that we hope to meet everybody again next Monday at our next workshop

and get ready to get to work because we got a lot to do to get that strategic plan done.

MR. TANTON: And where is that going to be, Mike?

MR. DeANGELIS: It's at SMUD Building. I think it is noticed on the hearing notice which is copies outside.

ACTING CHAIR RAKOW: As one of the speakers said, the hard work is ahead.

MR. DeANGELIS: That's correct.

PRESIDING COMMISSIONER ROHY: I just want to thank everyone for what I find was a very informative session today. And if you get along as well in your workshops as you did here today, you should be making incredible progress. I thank every one of you for your input today and for your work on the collaborative working group.

Last comment I have is please be careful of Al Pak. You're giving him too many compliments.

[Laughter]

PRESIDING COMMISSIONER ROHY: Hearing adjourned.

[Whereupon the meeting adjourned at 2:10 P.M.]

CERTIFICATE OF REPORTER

I, **S. RICE**, a duly commissioned Reporter of **CourtScribes**, do hereby declare and certify under penalty of perjury that I have recorded the foregoing proceedings which were held and taken at the **CALIFORNIA ENERGY COMMISSION** in Sacramento, California on the **5th day of February 1997**.

I also declare and certify under penalty of perjury that I have caused the aforementioned proceedings to be transcribed, and that the foregoing pages constitute a true and accurate transcription of the aforementioned proceedings.

I further certify that I am not of counsel or attorney for any of the parties to said hearing, nor in any way interested in the outcome of said hearing.

Dated this **7th day of February 1997** at Foresthill, California.

S. RICE
REPORTER